SEQUENCE LISTING

```
<110> Donoho, Gregory
     Turner, C. Alexander Jr.
      Nehls, Michael
      Friedrich, Glenn
      Zambrowicz, Brian
      Sands, Arthur T.
<120> Novel Human Kinase Proteins and
  Polynucleotides Encoding the Same
<130> LEX-0046-USA
<150> US 60/156,511
<151> 1999-09-28
<160> 13
<170> FastSEQ for Windows Version 4.0
<210> 1
<211> 561
<212> DNA
<213> homo sapiens
<400> 1
atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa
                                                                        60
tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat
                                                                       120
gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat
                                                                       180
ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt
                                                                       240
gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat
                                                                       300
ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat
                                                                       360
aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc
                                                                       420
aagatttgtg acttcgggtt tgcacaaatt ctgagttgga cttcatcttt ctctggtgcc
                                                                       480
tccttgattg gcttaatagt tgaccttctg aattctttt ctgccaattc agagattttt
                                                                       540
                                                                       561
ctcctggctt ggatccattg c
<210> 2
<211> 187
<212> PRT
<213> homo sapiens
<400> 2
Met Glu Lys Tyr Glu Lys Leu Ala Lys Thr Gly Glu Gly Ser Tyr Gly
                                     10
 1
Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val
                                 25
Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala
                                                 45
                             40
        35
Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val
                                             60
                         55
    50
Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe
                                         75
                     70
65
Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn
```

```
95
                                     90
                85
Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln
                                                     110
                                 105
            100
Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys
                                                 125
                            120
        115
Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp
                                             140
    130
                        135
Phe Gly Phe Ala Gln Ile Leu Ser Trp Thr Ser Ser Phe Ser Gly Ala
                                         155
                    150
145
Ser Leu Ile Gly Leu Ile Val Asp Leu Leu Asn Ser Phe Ser Ala Asn
                                                         175
                                     170
                165
Ser Glu Ile Phe Leu Leu Ala Trp Ile His Cys
                                 185
            180
<210> 3
<211> 1068
<212> DNA
<213> homo sapiens
<400> 3
atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa
                                                                         60
tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat
                                                                        120
gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat
                                                                        180
ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt
                                                                        240
gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat
                                                                        300
ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat
                                                                        360
aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc
                                                                        420
aagatttgtg acttcgggtt tgcacaaatt ctgattccag gagatgccta caccgattat
                                                                        480
gtagctacga gatggtaccg agctcctgaa cttcttgtgg gagatactca gtatggttct
                                                                        540
tcagtcgata tatgggctat tggttgtgtt tttgcagagc tcctgacagg ccagccactg
                                                                        600
tggcctggaa aatcagatgt ggaccaactt tatctgataa tcagaacact agtagagacg
                                                                        660
gggtttcgcc atgttgacca ggctggtctc gaactcttga cgtcaagtga tccacctgcc
                                                                        720
gtagcctctc aaagtgctgg aattacagga aaattaatcc caagacatca atcaatcttt
                                                                        780
aaaagtaacg ggtttttcca tggcatcagt atacctgagc cagaagacat ggaaactctt
                                                                        840
gaggaaaagt tctcagatgt tcatcctgtg gctctgaact tcatgaaggg gtgtctgaag
                                                                        900
                                                                        960
atgaatccag atgacagatt aacctgttcc caactcctgg agagctccta ctttgattct
tttcaagagg cccaaattaa aagaaaagca cgtaatgaag gaagaaacag aagacgccaa
                                                                       1020
caggtcagag gctgtgtttg gctgctgcag ctctgctcca ggctgcat
                                                                       1068
<210> 4
<211> 356
<212> PRT
<213> homo sapiens
<400> 4
Met Glu Lys Tyr Glu Lys Leu Ala Lys Thr Gly Glu Gly Ser Tyr Gly
                                                         15
                                     10
 1
Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val
                                 25
Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala
                                                 45
        35
                             40
Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val
                                             60
                         55
    50
```

75

Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe

Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn

70

```
90
                                                         95
                85
Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln
                                                     110
                                105
            100
Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys
                                                 125
                            120
        115
Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp
                        135
                                             140
    130
Phe Gly Phe Ala Gln Ile Leu Ile Pro Gly Asp Ala Tyr Thr Asp Tyr
                                         155
145
                    150
Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp Thr
                                     170
                165
Gln Tyr Gly Ser Ser Val Asp Ile Trp Ala Ile Gly Cys Val Phe Ala
                                 185
                                                     190
            180
Glu Leu Leu Thr Gly Gln Pro Leu Trp Pro Gly Lys Ser Asp Val Asp
                                                 205
                             200
        195
Gln Leu Tyr Leu Ile Ile Arg Thr Leu Val Glu Thr Gly Phe Arg His
                                             220
                        215
Val Asp Gln Ala Gly Leu Glu Leu Leu Thr Ser Ser Asp Pro Pro Ala
                                         235
                                                             240
                    230
225
Val Ala Ser Gln Ser Ala Gly Ile Thr Gly Lys Leu Ile Pro Arg His
                                                         255
                245
                                     250
Gln Ser Ile Phe Lys Ser Asn Gly Phe Phe His Gly Ile Ser Ile Pro
                                                     270
                                 265
            260
Glu Pro Glu Asp Met Glu Thr Leu Glu Glu Lys Phe Ser Asp Val His
                                                 285
        275
                             280
Pro Val Ala Leu Asn Phe Met Lys Gly Cys Leu Lys Met Asn Pro Asp
                                             300
    290
                        295
Asp Arg Leu Thr Cys Ser Gln Leu Leu Glu Ser Ser Tyr Phe Asp Ser
                                         315
                    310
Phe Gln Glu Ala Gln Ile Lys Arg Lys Ala Arg Asn Glu Gly Arg Asn
                                     330
                                                         335
                325
Arg Arg Gln Gln Val Arg Gly Cys Val Trp Leu Leu Gln Leu Cys
                                                     350
            340
                                 345
Ser Arg Leu His
        355
<210> 5
<211> 972
<212> DNA
<213> homo sapiens
<400> 5
atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa
                                                                         60
tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat
                                                                        120
gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat
                                                                        180
ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt
                                                                        240
                                                                        300
gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat
ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat
                                                                        360
aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc
                                                                        420
aagatttgtg acttcgggtt tgcacaaatt ctgattccag gagatgccta caccgattat
                                                                        480
gtagctacga gatggtaccg agctcctgaa cttcttgtgg gagatactca gtatggttct
                                                                        540
tcagtcgata tatgggctat tggttgttt tttgcagagc tcctgacagg ccagccactg
                                                                        600
tggcctggaa aatcagatgt ggaccaactt tatctgataa tcagaacact aggaaaatta
                                                                        660
                                                                        720
atcccaagac atcaatcaat ctttaaaagt aacgggtttt tccatggcat cagtatacct
                                                                        780
gagccagaag acatggaaac tcttgaggaa aagttctcag atgttcatcc tgtggctctg
aacttcatga aggggtgtct gaagatgaat ccagatgaca gattaacctg ttcccaactc
                                                                        840
```

ctggagaget cctactttga ttcttttcaa gaggcccaaa ttaaaagaaa agcacgtaat gaaggaagaa acagaagacg ccaacaggtc agaggctgtg tttggctgct gcagctctgc tccaggctgc at

<210> 6 <211> 324 <212> PRT

<213> homo sapiens

<400> 6 Met Glu Lys Tyr Glu Lys Leu Ala Lys Thr Gly Glu Gly Ser Tyr Gly Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp Phe Gly Phe Ala Gln Ile Leu Ile Pro Gly Asp Ala Tyr Thr Asp Tyr Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp Thr Gln Tyr Gly Ser Ser Val Asp Ile Trp Ala Ile Gly Cys Val Phe Ala Glu Leu Leu Thr Gly Gln Pro Leu Trp Pro Gly Lys Ser Asp Val Asp Gln Leu Tyr Leu Ile Ile Arg Thr Leu Gly Lys Leu Ile Pro Arg His Gln Ser Ile Phe Lys Ser Asn Gly Phe Phe His Gly Ile Ser Ile Pro Glu Pro Glu Asp Met Glu Thr Leu Glu Glu Lys Phe Ser Asp Val His Pro Val Ala Leu Asn Phe Met Lys Gly Cys Leu Lys Met Asn Pro Asp Asp Arg Leu Thr Cys Ser Gln Leu Leu Glu Ser Ser Tyr Phe Asp Ser

Phe Gln Glu Ala Gln Ile Lys Arg Lys Ala Arg Asn Glu Gly Arg Asn

Arg Arg Gln Gln Val Arg Gly Cys Val Trp Leu Leu Gln Leu Cys

Ser Arg Leu His

<210> 7 <211> 594 <212> DNA

<213> homo sapiens

<400> 7

atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca ttttagttttt gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc aagatttgtg acttcgggtt tgcacaaatt ctgagttgga cttcatcttt ctctggtgcc tccttgattg gcttaatagt tgaccttctg aattctttt ctgccaattc agagatttt ctcctggctt ggatccattg ctggaaaatt aatcccaaga catcaatcaa tctt										
<400> 8 Met Glu Lys Tyr 1	Glu Lys 5	Leu Ala	Lys Thr	Gly	Glu Gly	Ser	Tyr 15	Gly		
Val Val Phe Lys 20	Cys Arg	Asn Lys	Thr Ser	Gly	Gln Val	Val 30	Ala	Val		
Lys Lys Phe Val	Glu Ser		Asp Pro			Lys	Ile	Ala		
Leu Arg Glu Ile 50	Arg Met	Leu Lys 55	Gln Leu	Lys	His Pro	Asn	Leu	Val		
Asn Leu Ile Glu 65	Val Phe 70	Arg Arg	Lys Arg	Lys 75	Met His	Leu	Val	Phe 80		
Glu Tyr Cys Asp	His Thr 85	Leu Leu	Asn Glu 90	Leu	Glu Arg	Asn	Pro 95	Asn		
Gly Val Ala Asp 100		Ile Lys	Ser Val 105	Leu	Trp Glr	Thr 110	Leu	Gln		
Ala Leu Asn Phe 115	Cys His	Ile His 120	Asn Cys	Ile	His Arg		Ile	Lys		
Pro Glu Asn Ile 130	Leu Ile	Thr Lys 135	Gln Gly	Ile	Ile Lys 140	Ile	Cys	Asp		
Phe Gly Phe Ala 145	Gln Ile 150	Leu Ser	Trp Thr	Ser 155	Ser Phe	Ser	Gly	Ala 160		
Ser Leu Ile Gly	Leu Ile 165	Val Asp	Leu Leu 170	Asn	Ser Phe	Ser	Ala 175	Asn		
Ser Glu Ile Phe 180		Ala Trp	Ile His 185	Суѕ	Trp Lys	11e 190	Asn	Pro		
Lys Thr Ser Ile 195	Asn Leu									
<210> 9 <211> 1041 <212> DNA <213> homo sapiens										
<400> 9 atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat										

ccaaatcttg	tgaacctcat	cgaggtgttc	aggagaaaaa	ggaaaatgca	tttagttttt	240
		tttaaatgag				300
		atggcaaaca				360
		aaaacctgaa				420
		tgcacaaatt				480
		agctcctgaa				540
		tggttgtgtt				600
		ggaccaactt				660
		ggctggtctc				720
		aattacagga				780
		tggcatcagt				840
		tcatcctgtg				900
		aacctgttcc				960
		aagaaaagca				1020
caggtacttc	cgctcaaaag	t				1041

<210> 10

<211> 347

<212> PRT

<213> homo sapiens

<400> 10

Met Glu Lys Tyr Glu Lys Leu Ala Lys Thr Gly Glu Gly Ser Tyr Gly Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp Phe Gly Phe Ala Gln Ile Leu Ile Pro Gly Asp Ala Tyr Thr Asp Tyr Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp Thr Gln Tyr Gly Ser Ser Val Asp Ile Trp Ala Ile Gly Cys Val Phe Ala Glu Leu Leu Thr Gly Gln Pro Leu Trp Pro Gly Lys Ser Asp Val Asp Gln Leu Tyr Leu Ile Ile Arg Thr Leu Val Glu Thr Gly Phe Arg His Val Asp Gln Ala Gly Leu Glu Leu Leu Thr Ser Ser Asp Pro Pro Ala Val Ala Ser Gln Ser Ala Gly Ile Thr Gly Lys Leu Ile Pro Arg His Gln Ser Ile Phe Lys Ser Asn Gly Phe Phe His Gly Ile Ser Ile Pro

Glu Pro Glu Asp Met Glu Thr Leu Glu Glu Lys Phe Ser Asp Val His 285 280 275 Pro Val Ala Leu Asn Phe Met Lys Gly Cys Leu Lys Met Asn Pro Asp 295 300 290 Asp Arg Leu Thr Cys Ser Gln Leu Leu Glu Ser Ser Tyr Phe Asp Ser 320 315 310 305 Phe Gln Glu Ala Gln Ile Lys Arg Lys Ala Arg Asn Glu Gly Arg Asn 335 325 330 Arg Arg Gln Gln Val Leu Pro Leu Lys Ser 345 340

<210> 11 <211> 945 <212> DNA <213> homo sapiens

<400> 11

atggaaaagt atgaaaaatt agctaagact ggagaagggt cttatggggt tgtattcaaa 60 tgcagaaaca aaacctctgg acaagtagta gctgttaaaa aatttgtgga atctgaagat 120 180 gatcctgttg ttaagaaaat agcactaaga gaaatacgta tgttgaagca attaaaacat ccaaatcttg tgaacctcat cgaggtgttc aggagaaaaa ggaaaatgca tttagttttt 240 gaatactgtg atcatacact tttaaatgag ctggaaagaa acccaaatgg agttgctgat 300 ggagtgatca aaagcgtatt atggcaaaca cttcaagctc ttaatttctg tcatatacat 360 420 aactgtattc acagagatat aaaacctgaa aatattctaa taactaagca aggaataatc aagatttgtg acttcgggtt tgcacaaatt ctgattccag gagatgccta caccgattat 480 540 gtagctacga gatggtaccg agctcctgaa cttcttgtgg gagatactca gtatggttct tcagtcgata tatgggctat tggttgtgtt tttgcagagc tcctgacagg ccagccactg 600 tggcctggaa aatcagatgt ggaccaactt tatctgataa tcagaacact aggaaaatta 660 atcccaagac atcaatcaat ctttaaaagt aacgggtttt tccatggcat cagtatacct 720 gagccagaag acatggaaac tcttgaggaa aagttctcag atgttcatcc tgtggctctg 780 aacttcatga aggggtgtct gaagatgaat ccagatgaca gattaacctg ttcccaactc 840 900 ctggagagct cctactttga ttcttttcaa gaggcccaaa ttaaaagaaa agcacgtaat 945 gaaggaagaa acagaagacg ccaacaggta cttccgctca aaagt

<210> 12 <211> 315 <212> PRT <213> homo sapiens

<400> 12

Met Glu Lys Tyr Glu Lys Leu Ala Lys Thr Gly Glu Gly Ser Tyr Gly 10 1 Val Val Phe Lys Cys Arg Asn Lys Thr Ser Gly Gln Val Val Ala Val 25 Lys Lys Phe Val Glu Ser Glu Asp Asp Pro Val Val Lys Lys Ile Ala 45 35 Leu Arg Glu Ile Arg Met Leu Lys Gln Leu Lys His Pro Asn Leu Val 60 55 50 Asn Leu Ile Glu Val Phe Arg Arg Lys Arg Lys Met His Leu Val Phe 80 70 75 65 Glu Tyr Cys Asp His Thr Leu Leu Asn Glu Leu Glu Arg Asn Pro Asn 95 90 85 Gly Val Ala Asp Gly Val Ile Lys Ser Val Leu Trp Gln Thr Leu Gln 110 105 100 Ala Leu Asn Phe Cys His Ile His Asn Cys Ile His Arg Asp Ile Lys 125 120 115

```
Pro Glu Asn Ile Leu Ile Thr Lys Gln Gly Ile Ile Lys Ile Cys Asp
                                             140
                        135
    130
Phe Gly Phe Ala Gln Ile Leu Ile Pro Gly Asp Ala Tyr Thr Asp Tyr
                    150
                                         155
145
Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Leu Leu Val Gly Asp Thr
                                                          175
                                     170
                165
Gln Tyr Gly Ser Ser Val Asp Ile Trp Ala Ile Gly Cys Val Phe Ala
                                                      190
                                 185
            180
Glu Leu Leu Thr Gly Gln Pro Leu Trp Pro Gly Lys Ser Asp Val Asp
                             200
                                                  205
Gln Leu Tyr Leu Ile Ile Arg Thr Leu Gly Lys Leu Ile Pro Arg His
                                             220
    210
                         215
Gln Ser Ile Phe Lys Ser Asn Gly Phe Phe His Gly Ile Ser Ile Pro
                                                              240
                    230
                                         235
225
Glu Pro Glu Asp Met Glu Thr Leu Glu Glu Lys Phe Ser Asp Val His
                                     250
                245
Pro Val Ala Leu Asn Phe Met Lys Gly Cys Leu Lys Met Asn Pro Asp
                                                      270
            260
                                 265
Asp Arg Leu Thr Cys Ser Gln Leu Leu Glu Ser Ser Tyr Phe Asp Ser
                             280
                                                  285
        275
Phe Gln Glu Ala Gln Ile Lys Arg Lys Ala Arg Asn Glu Gly Arg Asn
                         295
                                             300
Arg Arg Arg Gln Gln Val Leu Pro Leu Lys Ser
305
                    310
                                         315
<210> 13
<211> 1819
<212> DNA
```

<213> homo sapiens

<400> 13

60 ctccgagcga cacgcgcggg agctgggct ggggctgttc ggcgctgctc gaagcttcgt 120 caccgtcgcc ctgtgggtgc agtgcagcat tgtactgcaa gtcaatcgat acaataattt 180 aagtcacttc agctataatg gaaaagtatg aaaaattagc taagactgga gaagggtctt 240 atggggttgt attcaaatgc agaaacaaaa cctctggaca agtagtagct gttaaaaaat 300 ttgtggaatc tgaagatgat cctgttgtta agaaaatagc actaagagaa atacgtatgt 360 tgaagcaatt aaaacatcca aatcttgtga acctcatcga ggtgttcagg agaaaaagga 420 aaatqcattt aqtttttgaa tactgtgatc atacactttt aaatgagctg gaaagaaacc 480 caaatggagt tgctgatgga gtgatcaaaa gcgtattatg gcaaacactt caagctctta 540 atttctgtca tatacataac tgtattcaca gagatataaa acctgaaaat attctaataa 600 ctaagcaagg aataatcaag atttgtgact tcgggtttgc acaaattctg agttggactt 660 catctttctc tggtgcctcc ttgattggct taatagttga ccttctgaat tcttttctg 720 ccaattcaga gatttttctc ctggcttgga tccattgctg acacagtgtt tcaccatggg geceaggete atetegaact tetggeetea agtgateett ceacetegge eteceaaagt 780 840 gctggattgc aagtgtgagc caccgtgccc agccagattt ttcaaacaat aactactgag 900 agctcacaag attgttttta gtgggaacac aatttcgaac aaattcttga gaacgcattc 960 caggagatgc ctacaccgat tatgtagcta cgagatggta ccgagctcct gaacttcttg 1020 tgggagatac tcagtatggt tcttcagtcg atatatgggc tattggttgt gtttttgcag 1080 agetectgae aggeeageea etgtggeetg gaaaateaga tgtggaeeaa etttatetga 1140 taatcaqaac actaqtaqaq acqqqqtttc gccatgttga ccaggctggt ctcgaactct 1200 tgacgtcaag tgatccacct gccgtagcct ctcaaagtgc tggaattaca ggaaaattaa 1260 tcccaagaca tcaatcaatc tttaaaagta acgggttttt ccatggcatc agtatacctg 1320 agccagaaga catggaaact cttgaggaaa agttctcaga tgttcatcct gtggctctga 1380 acttcatgaa ggggtgtctg aagatgaatc cagatgacag attaacctgt tcccaactcc 1440 tggagagete etaetttgat tetttteaag aggeecaaat taaaagaaaa geaegtaatg 1500 aaggaagaaa cagaagacgc caacaggtca gaggctgtgt ttggctgctg cagctctgct

